

F-5531

Sub. Code

8MES1C1

M.Sc DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

First Semester

Environmental Science

FUNDAMENTALS OF ECOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Autecology
2. Co-evolution
3. Taiga
4. Deciduous Forest
5. Ecological Pyramids
6. Ecological Niche
7. Neutralism
8. Edge Effect
9. Leghaemoglobin
10. Nif gene

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give an account on origin of life and speciation

Or

- (b) Write a critical note on Ecosphere and Biosphere.

12. (a) Explain about the flora and fauna of fresh water pond ecosystem.

Or

- (b) Explain about the Pelagic and Benthic of Marine habitats

13. (a) Write a critical note on Y shaped energy flow model in ecosystem.

Or

- (b) Give an account on dominance, stratification and periodicity of community ecology.

14. (a) Define density, natality and mortality of population ecology

Or

- (b) Write critical note on intra-specific and inter specific competition in population ecology.

15. (a) Briefly explain about the concept and definition of Environmental Microbiology

Or

- (b) Give name of the important soil microorganisms and explain their functions in ecosystem.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Define ecology and discuss in detail on the scope and objectives of ecology.
 17. Write an essay on tropical rain forest and explain their characteristics with flora and fauna of them.
 18. Define succession and give an account on characteristics, climax principles and significance of Succession.
 19. With suitable examples explain about the Symbiosis, Commensalism, antagonism, antibiosis and parasitism.
 20. What are all the criteria employed for disposal of pollutants in marine ecosystem? Explain in detail.
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8MES1C2

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

First Semester

Environmental Science

ENVIRONMENTAL POLLUTION

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Write a short note on episode acidification.
2. What are the health effects of hydrocarbon pollutants?
3. Define the basic principle of Reverse osmosis.
4. Differentiate composite sample from grab sample.
5. What is biomagnification?
6. Define biodegradation.
7. Write a note on Open windows composting.
8. Differentiate corrosive wastes from reactive wastes.
9. Write a short notes on environmental effects of e-waste.
10. How does Methyl Isocyanate affect the human body.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain in detail the chemistry of ozone and oxygen cycle in the atmosphere.

Or

- (b) Write a brief account on source, types and health effects of particulate matter.

12. (a) Discuss in detail mechanisms of application coagulation in water treatment.

Or

- (b) Write a note on causes, consequences and control of ground water pollution.

13. (a) Write a note on the Black Carbon Emissions: source, impacts and mitigation.

Or

- (b) Describe in detail the sources and classification of soil pollution.

14. (a) Describe in detail the causes, types and consequences of light pollution.

Or

- (b) Write a note on
(i) measurement of noise and
(ii) incineration and pyrolysis of solid wastes.

15. (a) Describe the causes and consequences of Love canal disaster.

Or

- (b) Write a brief note on the reason and environmental effects of British petroleum oil spill.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed account on meteorological aspects of plume and stack dispersion.
 17. Describe in detail the causes, types, impacts and control of eutrophication.
 18. Give a detailed account on *in situ* chemical and biological decontamination techniques for soil cleanup.
 19. How can you classify the hospital waste? And discuss elaborately about hospital waste treatment techniques.
 20. Discuss the causes, short term and long term consequences of Chernobyl accident.
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8MES1C3

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

First Semester

Environmental Science

ENVIRONMENTAL CHEMISTRY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define acid base reaction.
2. Define Gibb's energy.
3. What are ions?
4. Explain thermochemical reaction with an example.
5. Define Enthalpy.
6. What is chemical potential?
7. What is photochemical smog?
8. Define redox potential.
9. What is PAH?
10. What is micro nutrient?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the solubility of gases in water with example.

Or

- (b) Provide a detailed note on saturated hydrocarbons.

12. (a) Write short note on classification of elements.

Or

- (b) Explain the photochemical reactions in the atmosphere.

13. (a) Write a brief note on the first law of thermodynamics.

Or

- (b) Explain in detail about the Gibb's Donnan equilibrium.

14. (a) Write a short note on chemistry of air pollutants.

Or

- (b) Explain in details on water treatment.

15. (a) Write a short note on mineralogical composition of soil.

Or

- (b) Write a brief note on PCBs and chlorofluorocarbons.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in details about saturated and unsaturated hydrocarbons.
 17. Write in detail on the chemical processes for formation of inorganic and organic particulate matter.
 18. Briefly explain the laws of thermodynamics.
 19. Explain in details about the Oxygen and ozone chemistry.
 20. Write in detail on the physical properties of soil.
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Sub. Code

8MES1C4

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

First Semester

Environmental Science

ENVIRONMENTAL MICROBIOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. What does chemolithoautotrophs mean?
2. Define lag phase of bacterial growth curve.
3. Comment on hyperthermophile.
4. List any four species of pathogenic organisms which may be present in polluted water.
5. What are endophytes?
6. Define the term Ammensalism with suitable example.
7. Define biomonitors.
8. What are the advantages associated with using bioindicators in environment?
9. Write a short note on Nucleic Acid Probes.
10. Enumerate the basic characteristic features of PCR primer

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) How to classify microorganisms on the basis of their O₂ requirements, shapes and colony morphology.

Or

- (b) Prokaryotes are essential for all life in earth- Explain.

12. (a) Discuss in detail about the adaptation mechanism of microorganism to the air environment.

Or

- (b) Define the following terms: Eutrophication, pasture of the sea, Piezophile, Allogenic succession and Endotoxins.

13. (a) Explain in detail about microbe interaction in a biofilm.

Or

- (b) Discuss in detail about the role of living organisms in carbon cycle and how do humans interfere the carbon cycle.

14. (a) Give a detailed account on Control of Microbes by Physical agent.

Or

- (b) Write notes on the assessment of water quality using indicator organisms.

15. (a) Write detailed note on the principle, advantages and disadvantages of culture dependent and culture independent approaches for determining microbial diversity.

Or

- (b) Explain about the principle, potential and limitations of BIOLOG method in ecological studies.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about Aerobic Respiration of Glucose.
17. Give a detailed account on Bioaerosols - sources, classification, properties and factors that influence their viability and infectivity.
18. How does atmospheric nitrogen (N₂) get changed into a form that can be used by most living organisms?
19. Give a detailed account on direct and indirect transmission of pathogens to higher organism.
20. Describe about the principle, methodology, application, advantages and disadvantages of ARDRA in Ecological Studies of Microbial Communities.

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8MES1E1

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

First Semester

Environmental Science

Elective-DISASTER MANAGEMENT

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Creeping disaster.
2. What is Beach protection?
3. Explain Landslides.
4. Define Cyclones.
5. What is GPS?
6. Write a brief note on post disaster.
7. Define CBO.
8. Write the roles of Armed forces in disasters.
9. What are the steps involved in disaster mitigation?
10. Write the role of UN in disaster mitigation.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a brief note on Hazards as natural process.

Or

- (b) Write a brief note on coastal erosion due to manmade structures.

12. (a) Write short note on Earthquakes.

Or

- (b) Write short note on Sea water intrusion.

13. (a) Write a brief note on the protection measures during disaster and post disaster.

Or

- (b) Explain in details about the Disaster management cycle.

14. (a) Write a short note on Disaster preparedness and training.

Or

- (b) Explain in details about the roles of NGO in disasters.

15. (a) Explain in details about the importance of IDNDR in disasters.

Or

- (b) Write a short note on the Regulation for disaster tolerance building structures.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the Human response to hazards.
 17. Write an essay on the major threats to coastal ecosystem.
 18. Write in details about the Technologies adapted for disaster management.
 19. Explain in details about the roles and responsibilities of different national and international agencies in disaster management.
 20. Write an essay on the Emerging trends in disaster management.
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Sub. Code

8MES2C1

M.Sc. DEGREE EXAMINATION, APRIL 2021 &

Supplementary/Improvement/Arrear Examinations

Second Semester

Environmental Science

INSTRUMENTATION AND ANALYTICAL TECHNIQUES

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Lambert's law
2. Electromagnetic Lens
3. Relative Mobility Front
4. Plasma
5. Coomassie Brilliant Blue
6. Photodiode Array Detector
7. Lux Meter
8. Calomel Electrode
9. Ethidium Bromide
10. Tag Polymerase

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Give an account on principles, instrumentation and application of UV-Visible spectrophotometer.

Or

- (b) Write critical notes on Titrimetry and Coulometry and explain their applications.

12. (a) Briefly explain about the principles and application of ion exchange chromatography.

Or

- (b) Comment on flow cytometer and give a concise account on its applications

13. (a) Give a detailed account on Agarose gel electrophoresis and give notes on its application.

Or

- (b) Explain the working performance of Flame photometer and add a note on its wider applications.

14. (a) Give a brief account on instrumentation and application of voltammetry and turbidimetry

Or

- (b) Define calorimeter and what are all the biological applications? Explain

15. (a) Briefly explain about the sequencing of proteins and Nucleic acids.

Or

- (b) Give an account on western blotting technique.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on scanning electron microscopy and explain how to assess the surface morphological characters of molecules
 17. Give an account on principle, instrumentation and application of plasma emission Spectroscopy.
 18. With suitable diagram, explain about the Gas chromatography and give a brief account on its applications.
 19. Name the various metrological monitoring devices and give an account on their application in ecological studies.
 20. Discuss about the Southern and northern blotting techniques and explain their role in sequencing of nucleic acids.
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Sub. Code

8MES2C2

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Second Semester

Environmental Science

ENVIRONMENTAL BIOTECHNOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Write down a few constrains in deploying Geosensors and write down its key applications in environment.
2. What are the cofactor required for Type I and Type II restriction enzymes activity?
3. List out the health effects of pesticides.
4. Differentiate biosorption and bioaccumulation.
5. Write a short note on resource management.
6. Brief the current energy crisis in India.
7. Write the principle of fluidized bed reactor.
8. Write down the advantages of GM crops.
9. Define bioethics and its importance.
10. List out the primary methods for treatment and disposal of biohazard.

Part B

(5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Explain Suicide Gene Therapy and how it will be a useful approach to treat a patient.

Or

- (b) Discuss the techniques involved in restriction mapping.

12. (a) Briefly explain the detoxification mechanism of pollutant by microbes.

Or

- (b) Discuss the following in context to bioremediation

(i) biotransformation

(ii) Complexation

(iii) Efflux mechanism

13. (a) Give a detailed account on potential bio-resources in energy production.

Or

- (b) Write down the biotechnological applications in environmental management.

14. (a) Briefly explain the agricultural improvement through biofertilizers.

Or

- (b) Explain the steps involved in conserving endangered species.

15. (a) Briefly explain the followings
- (i) Patent
 - (ii) Types of patent
 - (iii) Benefits of patent

Or

- (b) Write down the risks of transgenic plants on environment and human health.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write a detailed account on potential use of GMO in biodegradation of various pollutants.
17. Write a detailed account on mechanisms and constrains in phytoremediation processes.
18. Discuss the role of biotechnology in following fields
- (a) Energy production
 - (b) Radionuclides bioremediation
 - (c) Mineral recovery
 - (d) Oil recovery
19. Write a detailed account on modern agricultural strategies and biotechnological advances in agriculture.
20. Discuss in detailed
- (a) Human genome project
 - (b) Intellectual property rights.

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8MES2C3

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Second Semester

Environmental Science

ENVIRONMENTAL TOXICOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define toxicology.
2. What are the different types of toxic agents?
3. Explain biomagnification?
4. Explain : LC₅₀ and LD₅₀.
5. What is phototoxicity?
6. Define hepatic necrosis.
7. What is neuronopathy?
8. Define immunotoxicity
9. Define the term toxicogenomics.
10. Describe toxicoproteomics.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on the sources of environmental toxicants

Or

- (b) Describe about Organochlorine insecticides.

12. (a) Give an account on acute and chronic toxicity.

Or

- (b) Give an account on OSHA Permissible Exposure Limit?

13. (a) Write about respiratory toxicants and their effects.

Or

- (b) Give an account on Hepatitis.

14. (a) Describe about cardiovascular toxicants and its effects.

Or

- (b) Discuss immune mediated diseases?

15. (a) Write about the role of ecotoxicogenomics for environmental monitoring and toxicant identification.

Or

- (b) Explain about risk assessment.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Justify heavy metals as major group of environmental toxicants.
 17. Give a detailed account on dose-response relationship in evaluating toxicity.
 18. Give an account on hepatotoxins and nephrotoxins.
 19. Explain about endocrine system, endocrine disrupting chemicals and their toxicity.
 20. Elucidate the process of DNA and RNA metabolism by toxicants.
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8MES2E1

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Second Semester

Environmental Science

Elective–BIOREMEDIATION

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define bioremediation?
2. What are organic pollutants?
3. What is biomining?
4. Explain Biosorption.
5. Explain the significance of using bioplastics.
6. What are biofuels?
7. Define enzymes.
8. Explain Anabolism and Catabolism.
9. What is a GMO? Give an example.
10. Differentiate : biosafety and biosecurity.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on biotrickling filters.

Or

- (b) Explain about biodeterioration.

12. (a) Elucidate about biosorption and its benefits.

Or

- (b) Briefly describe about biological phosphate removal process from waste water.

13. (a) Give an account on the biosensor technology.

Or

- (b) Justify vermitechnology as a bioremediation technique

14. (a) Describe about enzyme modification and its uses.

Or

- (b) Briefly describe about operon deregulation.

15. (a) Explain bioethics.

Or

- (b) Write about transgenic crops.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elucidate the aerobic process of degradation of organic pollutants.

17. Describe the underlying mechanism in bioremediation of radionuclides.

18. Explain bioremediation as a tool for waste recovery.
 19. Explain about molecular techniques in bioremediation.
 20. Give an account on patent laws and regulation.
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Sub. Code

8MES2E2

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Second Semester

Environmental Science

Elective: ENVIRONMENTAL ENGINEERING

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Write a brief note on man and environment relationship.
2. Write the scope of Environmental Engineering in urbanization.
3. What is smog?
4. Explain flue gas.
5. What is COD?
6. Give two examples of toxic organic chemicals of water pollutants.
7. Write a short note on soil polluting agencies.
8. Define incineration.
9. Write the main objective of the Water Cess Act, 1977.
10. What is ISO 14 000?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write an overview of man and environment with insight on socio-economic structure.

Or

- (b) Explain the pollution problems related to industrialization.

12. (a) Write the types and sources of air pollution.

Or

- (b) Provide a detailed note on thermal decomposition.

13. (a) Write a brief note on biological pollution.

Or

- (b) Define radioactivity. Explain about radioactivity wastes.

14. (a) Write a short note on domestic and industrial wastes.

Or

- (b) Explain in details on sanitary land field.

15. (a) Write the salient features of the air pollution control acts and rules.

Or

- (b) Explain in details about the functions of central pollution control boards.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Provide detailed information on occupational exposures.
 17. Write the methods and approach of air pollution control.
 18. Briefly explain the types of water pollution and their effects.
 19. Write an essay on the dumping domestic and industrial solid wastes in India.
 20. Write about the environmental management system followed in India.
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Sub. Code

8MES2E3

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Second Semester

Environmental Science

Elective: BIODIVERSITY AND CONSERVATION

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Species.
2. What is Red data book?
3. Define Endemic species.
4. Differentiate invertebrates and vertebrates.
5. Define Coral reef.
6. What is habitat loss?
7. Give an example for non-consumptive use value of biodiversity.
8. What do you mean by Ecocentrism?
9. Define *Ex situ* Conservation.
10. Define Threatened species.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a brief note on Species inventory.

Or

- (b) Write a short note on Biodiversity hot spots.

12. (a) Write a brief account on Global distribution of species.

Or

- (b) Write a short note on Human caused extinctions.

13. (a) Write a brief note on Grasslands.

Or

- (b) Write a brief note on the impacts of invasive species on ecosystem.

14. (a) Write a short note on Ecological Economics.

Or

- (b) Write a brief note on Livestock and fisheries.

15. (a) Write a short note on Biodiversity conventions.

Or

- (b) What are the salient features of Forest Conservation Act 1980?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the IUCN categories.

17. Give a detailed account on monitoring indicator species and habitats.
 18. Write an essay on Urban Ecosystem.
 19. Write an essay on Values of biodiversity.
 20. Provide a detailed account on National Biodiversity Act and National Biodiversity Authority.
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8MES2E4

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Second Semester

Environmental Science

Elective: ENVIRONMENTAL EDUCATION

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is environmental education?
2. Define endangered species.
3. What is NGOs and ENGOs given an example of ENGO?
4. Classify natural resources.
5. What is environmental pollution?
6. Define acid rain.
7. What is core area, buffer area and transition zone?
8. Define ecotourism.
9. Define the term sustainable development.
10. What is man and animal conflict?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on importance of environmental education.

Or

- (b) Explain the different levels of environmental training.

12. (a) Write about the role of non-government organizations in resources management.

Or

- (b) Briefly describe about role of educational institutions in environmental management.

13. (a) Give a note on a case study of community based resource management.

Or

- (b) Write a note on ozone layer depletion.

14. (a) Discuss the role of mass media in environmental awareness.

Or

- (b) Briefly describe about five major environmental problems in the India.

15. (a) Explain about soil conservation methods.

Or

- (b) Write about the importance of waste management.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the interdisciplinary nature of environmental education.
 17. Describe the teaching and learning strategies for environmental management.
 18. Give an account on various environmental hazards.
 19. Explain about national conservation strategy and policy statement on environment.
 20. Give a detailed account on various sources of alternative energy.
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Sub. Code

8MES3C1

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

BIOSTATISTICS AND RESEARCH METHODOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Regression.
2. What is Probability analysis?
3. What is Non-Probability Sampling?
4. What is Stratified Sampling?
5. What is z- test?
6. Expand ANOVA
7. What is PCA?
8. Define Factor Analysis.
9. What is meant by Bibliography?
10. What is a Research Article?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain in details on the Scheme of Classification in Basic statistics.

Or

- (b) What are the major objectives of Tabulation?

12. (a) Discuss the demerits of Simple Random Sampling.

Or

- (b) How is Systematic Random Sampling done?

13. (a) Write a short note on Error level of Significance.

Or

- (b) What is Regression? Explain in details.

14. (a) What is SPSS? How does it benefit survey data analysis?

Or

- (b) Discuss the Descriptive analysis in SPSS.

15. (a) How to prepare literature review?

Or

- (b) How to prepare scientific documents.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the Theoretical Distribution.

17. Explain in details on Quota Sampling.

18. Explain Environmental System Analysis.
 19. Write a detailed note to Plot a Bar Chart in SPSS?
 20. What are the communication skills should an effective researcher possess?
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Sub. Code

8MES3C2

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

REMOTE SENSING AND GIS

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is IRS?
2. What is the use of IRS Satellite?
3. What are the two Windows in the earth atmosphere?
4. What are Grey Bodies?
5. Name any two GIS Software.
6. Define GPS.
7. What is Land Covering Mapping?
8. Mention two application of GIS in Agriculture.
9. What is BOS?
10. Define ENVISAT.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the Application of different types of images in Archaeology.

Or

- (b) Write a short note Microwave Remote Sensing.

12. (a) Write a short note on Image Interpretation.

Or

- (b) Discuss on the Types of Photographs.

13. (a) Describe Geographical Information Systems.

Or

- (b) What is the difference between Raster and Vector?

14. (a) Explain the GIS Application in groundwater.

Or

- (b) Discuss the Applications of GPS.

15. (a) Write a short note on use of Remote Sensing in Water Pollution.

Or

- (b) Write a short note on Megha Tropiques.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write in details on the Application of different types of images in Forestry.

17. Write a short note on Concept of Remote Sensing.
 18. Discuss in details on the use of Spatial Data.
 19. Write a short note on Wetland Mapping using GIS.
 20. Explain in details on the application of Remote Sensing in Mining.
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8MES3C3

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

ENVIRONMENTAL IMPACT ASSESSMENT

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Screening.
2. What is Public hearing?
3. What is a checklist?
4. Define a positive impact.
5. National Green tribunal
6. Environmental standards.
7. Emission trading
8. Montreal protocol
9. Give the potential impact of aquaculture on the environment.
10. Mention a positive benefit, the hydrothermal power plant may have on the society?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the importance of conducting baseline studies in EIA process.

Or

- (b) Scoping is an essential step EIA process - Discuss.

12. (a) Explain network method of identification of impacts.

Or

- (b) Explain the possible negative impacts of a project activity on the water environment.

13. (a) Discuss how international treaties help in reducing negative impacts on the environment.

Or

- (b) Highlight the salient features of the public liability insurance act.

14. (a) How do environmental ethics emphasize happiness, justice, human rights and equity?

Or

- (b) Explain role of Kyoto protocol in mitigating climate change.

15. (a) How will you frame an environmental inventory for a nuclear power plant project?

Or

- (b) Explain the impacts on biological environment due to construction of a dam.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed procedure of the environmental impact assessment process.
 17. Elaborate the impact assessment procedure for predicting impacts on air environment.
 18. Enlist and explain the legal provisions under Indian constitution for environmental protection.
 19. Explain the need for equitable utilization of resources for sustainable development.
 20. Citing a case study, give the EIA process for a mining project.
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F-5546

Sub. Code

8MES3E1

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

**Elective: HEALTH HAZARDS AND INDUSTRIAL
SAFETY**

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Noise.
2. Give the wavelength and frequency of Radio waves.
3. What is Byssinosis?
4. Define toxicity.
5. What is first aid?
6. What are personal protective equipment?
7. Where is the headquarters of the International Labour Organisation situated?
8. The Indian Electricity Act and Indian Explosive Act formulated in which year?
9. When and where did the Bombay docks explosion occur?
10. Name any two industrial disasters in the world.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on occupational hazards arising from ionizing radiations.

Or

- (b) What is a Biohazardous material? Write a note on its classification.

12. (a) Elaborate on Pneumoconiosis.

Or

- (b) Write a note on Chromium toxicity.

13. (a) List the types of fire extinguishers. Add a note on how to use a fire extinguisher.

Or

- (b) Discuss the different types of machinery maintenance followed by industries.

14. (a) Write a short note on National Policy on Safety, Health and Environment at workplace.

Or

- (b) List the chapters under the Factories act, 1948.

15. (a) Discuss the Courrieres Mine Disaster.

Or

- (b) Discuss the Chasnala Mine Disaster.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elaborate on Chemical hazard.
 17. Write a note on Carbon monoxide poisoning.
 18. Elaborate on fire detection and alarm systems.
 19. Discuss the rules for transport of Hazardous Materials
 20. Elaborate on Spyros Disaster.
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F-5547

Sub. Code

8MES3E2

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

Elective: CLIMATE CHANGE

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Weather.
2. Explain : Climate change.
3. What do you mean by adaptation response to climate change?
4. Highlight the concept of green building.
5. Explain voluntary / market based approaches in Paris agreement.
6. What are Annex 1 countries in the Kyoto protocol?
7. Explain COP 21.
8. Describe carbon credits.
9. What is a carbon tax?
10. Explain Green fiscal policy.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain Coriolis effect.

Or

- (b) Explain causes and effects of sea level rise.

12. (a) Explain: Low carbon economy.

Or

- (b) Briefly discuss renewable energy sources.

13. (a) Highlight the objectives of UNFCCC.

Or

- (b) Explain role of Kyoto protocol in addressing climate change.

14. (a) Write a brief note on the clean Development Mechanism.

Or

- (b) What is climate justice? Add a note on its importance.

15. (a) Write a note on effect of climate change on health care.

Or

- (b) What is the Socio-economic impact desertification?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detail note on the impact of climate change on the environment and biodiversity.
 17. Elaborate the measures taken at international level to adapt to climate change scenario.
 18. Elucidate the United Nations framework convention on climate change.
 19. Write an overview of an environmental movement in India to mitigate climate change.
 20. Discuss climate change and its impact on monsoon in India.
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F-5548

Sub. Code

8MES3E3

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

Elective: ECOTOURISM

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Religious Tourism.
2. Explain about Adventure Tourism.
3. Give an account on concepts of Ecotourism.
4. Explain about the Ecotourism Topologies.
5. Name the important Biosphere Reserves in India.
6. Explain about the Rain Forest Ecotourism.
7. Define Total Quality Management (TQM) of Ecotourism Resorts.
8. Explain the term Ecosystem Service.
9. United Nation World Tourism Organization-explain.
10. Enumerate the Advantages of Ecotourism.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) With suitable examples, explain about the Cultural and Heritage Tourism.

Or

- (b) Briefly explain about the Consumptive Tourism.

12. (a) Give an account on concepts of Ecotourism.

Or

- (b) Explain about the various benefits of Ecotourism.

13. (a) Discuss about the role of Ecotourism in view of conservation perspectives.

Or

- (b) Write critical notes on Ecotourism activities in Bandipur National Park, Karnataka.

14. (a) Briefly explain about the Economic Impacts of Ecotourism.

Or

- (b) Give an account on Globalisation of Ecotourism attributes.

15. (a) Discuss about the various Management Issues in Ecotourism.

Or

- (b) Give an account on role of Ethics in Ecotourism.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on Monumental, Mass and Sustainable Tourisms.
 17. Write critical notes on Types of Ecotourism and explain the various trends affecting the Ecotourism.
 18. Write an essay on Rain Forest and Mountain Ecotourism.
 19. Explain about the knowledge, skills, attitude and commitment of ecotourism service providers.
 20. Give an elaborate explanation regarding the Eco-branding and Eco-labelling of ecotourism products.
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F-5549

Sub. Code

8MES3E4

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &
Supplementary/Improvement/Arrear Examinations**

Third Semester

Environmental Science

Elective: NATURAL RESOURCE MANAGEMENT

(CBCS – 2018 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Give any two benefits of Forest.
2. Define Community Forestry.
3. What is Wildlife?
4. Define Endangered Species.
5. Define Solar Energy.
6. What is Geothermal Energy?
7. What is Soil Profile?
8. What is Fertile Soil?
9. What is Surface Water?
10. What is Watershed management?

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on Social Forestry.

Or

- (b) What are the major Forest Products? Explain in detail.

12. (a) Write a short note on the importance of Wildlife.

Or

- (b) How to conserve Wildlife?

13. (a) Explain in details on Wind energy.

Or

- (b) What is Tidal Energy? Explain in detail.

14. (a) What are the Characteristics of Soil?

Or

- (b) What is Soil Survey?

15. (a) What is the importance of Water Management?

Or

- (b) Write a short note on freshwater fish culture.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. How are Tribals dependent on Forest? Explain in details.
17. What is the difference between National Park and Wildlife Sanctuary?

18. Describe in details on Nuclear Power.
 19. What is Soil Erosion? Explain in details.
 20. Provide a detailed account on Rainwater Harvesting.
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